ENGR. AYESHA AKRAM

Lecturer – Civil Engineering Department
NED University of Engineering & Technology
✉ ayeshaakram@neduet.edu.pk, ayesha.akram002@gmail.com

Research Interests

Seismic Resistance of Structures Finite Element Analysis Structural Materials Precast Structures
Seismic analysis and rehabilitation Structural Retrofitting

Education

2019 - 2022 **Master of Engineering (Civil) in Structural Engineering**
NED University of Engineering & Technology, Karachi, Pakistan
Thesis: Finite Element Modeling (FEM) Of Dry Connections For Precast Concrete Building Structures

2013 - 2017 **Bachelor of Engineering (Civil)**
NED University of Engineering & Technology, Karachi, Pakistan
Final Year Project: Determination of Mechanical properties of Textile Reinforced Mortar (TRM) using two different mortars.

2011 - 2013 **HSC (Pre-Engineering)**
B.A.M.M P.E.C.H.S College for Women, Karachi, Pakistan

2009 - 2011 **SSC (Science)**
Young Scholars Public Secondary School, Karachi, Pakistan

Academic Work Experience

- **Lecturer**
  Department of Civil Engineering, NEDUET, Karachi, Pakistan [March 2023 – Present]
  Responsibilities:
  - Teaching labs and courses in the domain of civil engineering.
  - Co-supervisor of Final year design projects.
  - Served as a member of the organizing committee for the International Civil Engineering Conference (ICEC) in 2023-2025
- **Visiting Faculty**
  Department of Civil Engineering, NEDUET, Karachi, Pakistan [Oct 2022- March 2023]
  Responsibilities:
  - Taught course work, labs in the domain of Structural Engineering and water resources.
- **Research Assistant** [Jan 2021 – Oct 2022]
  CAHSBE, NEDUET

Responsibilities:

- Worked in Research project with Hub Co Pvt Ltd on Use of Fly Ash in RMC and pavers. Organized a national workshop/seminar as a Coordinator and Member of Organizing Committee on "Use of Fly Ash in Civil Infrastructure"
- Worked as a project coordinator on construction of Model Homes constructed using LGS (Light Guage Steel) & HSS (Hollow Steel Section) at NED University of Engineering & Technology.
- Organized Inauguration of Model Home as a Coordinator and Member of Organizing Committee at NED University of Engineering & Technology"
- Coordinator and Member of Organizing Committee for the Academia network meetings by CAHSBE.

Potential Research Publications

- Characterization of Concrete-TRM Interface for Strengthening of Reinforced Concrete Beams (**Submitted**)
- Numerical Simulation of Proposed Dry Precast Slab-To-Wall Connections in Low-Rise Buildings (**Submitted**)
- Response Evaluation of Dry Connections in Precast Reinforced Concrete Building Structures (**In Progress**)

Undergraduate Final Year Projects Supervised

- Behavior Of Structural Concrete Strengthened With Taparan FRP (2024)
- Experimental Study Of Aluminium Usage For Shear Strengthening Of RC Beams (2024)
- Strengthening of Reinforced Concrete Columns under Axial Compression loading using Taparan FRP (2025)
- Experimental and Numerical investigation of Taparan FRP wrapped Columns (2025)

Research Experience

Post Graduate Thesis

Research Title: "Finite Element Modeling (FEM) Of Dry Connections for Precast Concrete Building Structures"

Two types of dry connections were proposed and designed for residential building, one for beam-column connection of a G+3 story building and one for slab-wall connection of a single unit structure. The connections were analyzed using Finite Element Analysis software "ABAQUS". Stress distribution, mode of failure, displacements and load vs drift curves were made and studied. After successful analysis of the proposed connections, parametric study was carried out on compressive strength of concrete, embedded length of bolt and bolt diameter.

Undergraduate Research Project

Research Title: "Determination of Mechanical properties of Textile Reinforced Mortar (TRM) using two different mortars."

The mechanical properties of Textile Reinforced Mortar (TRM) were experimentally investigated to enhance the flexural and deformational capacities of reinforced concrete (RC) beams. Basalt fiber grids were used with two types of mortar: TYFO® C matrix and BASF® EMACO 488. Pull-out and double lap shear

tests were conducted to determine the direct tensile and shear strengths of the concrete-TRM interface. Seven RC beams were tested under three-point bending conditions to evaluate the concrete-TRM interface under combined shear and tensile stresses. The experimental results demonstrated that RC beams strengthened with TRM could bear higher loads and were more ductile when compared to the control beam.

Industrial Work Experience

Junior Structural Engineer [May 2018 – Oct 2018]
Sadaf Fatima Structural Engineers, Karachi, Pakistan

Responsibilities:

- Designing of RC Structures, using softwares like ETABS & SAFE as well as manual calculations
- Foundation designing using SAFE.
- Assisted in different residential and commercial projects. Preparing Site Observation Reports, Structural Design Reports, Quantity and Cost Estimations and BOQ.

Internship: Worked as an intern at a site of PARAGON Construction (Pvt) Ltd, Opal 225, from May 23, 2016 to June 23, 2016

Skills and Competences

Software: ABAQUS, ATENA 3D, SAFE, ETABS, SAP, Python, MATLAB
Microsoft Office Tools: Word, Excel, PowerPoint
Laboratory: Material testing including cement mortar, concrete, and steel, Structural members testing under different loading conditions, Data collection and analysis
Personal Strengths: Highly adaptable, Good communication, Problem Solving skills

Achievements & Awards

- Recipient of UKAA (University of Karachi Alumni Association) Scholarship for Masters.